Globalization and Economic Growth in CEMAC: The Role of Complementarities

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Abstract

This study provides an empirical assessment of the relationship between economic globalization and economic growth. Furthermore, the study examined the effect of complementary policies on the growth effect of globalization. Based on CEMAC countries for the period from 1970 to 2015, analyses were performed using panel data regressions. In line with previous economic research, the findings indicate that the impact of economic globalization on economic growth in CEMAC is positive and significant. The results also show that the impact of economic globalization in CEMAC countries does not depend on the level of democracy and financial development.

Keywords: Economic Growth, Economic Globalization, CEMAC

1. Introduction

During the last thirty years, the world has taken profound economic, political and social transformations. The national economy until relatively closed there has undergone these changes and crossed to a more open world, in which it is inscribed and operated within an only world economy and integrated more and more. Gygli and al. (2018) defined globalization as "*the process of creating networks of connections among actors at intra- or multi-continental distances, mediated through a variety of flows including people, information and ideas, capital, and goods"*. It is seen by some like a chance and enrichment, by others like a threat.

Research in economics on the effects of globalization on economic growth and prosperity grab a great deal of attention over the past three decades, and with good reasons. International Monetary Fund (IMF, 2001) argued that the integration to the world economy would be the driving force behind the economic growth in developing countries which results in development and welfare. Indeed these last decades, the governments of developing countries set up the incentives measurements to integrate the world economy and its different effects on economic growth and welfare. As subset of the developing world, Central African Economic and Monetary Community (CEMAC) are also faced to opportunities and cost of globalization.

The CEMAC is an alliance of 6 countries[1] which consists of low and middle income countries. The CEMAC has converged towards the average income level of the Emerging Economies (EE) of the Sub-Saharan Africa (SSA) from the mid-1990 to the mid-2000, period during which its average GDP per capita has increased faster than in the EE (IMF 2015). However, since 2005, and despite of the high level of oil prices until recently, convergence has stalled. As a result, the per capita income gap with the EE of the ASS remained around 30 %. From 2000 and 2013, the average GDP per capita growth in the CEMAC was 1.4 percentage point lower than that of the SSA's pre-emergent economies (IMF 2015).

From the economic standpoint, one can truly speak about the paradox of the CEMAC countries. Indeed, this area is equipped with many natural, tourist, cultural and human resources. Unfortunately, these resources were not being used efficiently. New considerable factors are necessary to enhance the economic growth. Likewise many emergent economies of South-East Asia, the CEMAC can seize opportunities which globalization offers to stimulate the economic growth and to improve the welfare. Theoretical and empirical literatures developed these last years on the relationship between globalization and economic

[1] Cameroon, Gabon, Chad, Equatorial Guinea, Congo and Central African Republic

development does not lead to a consensual result. While the globalization causes unemployment in industrialized countries, affect negatively growth and may lead to more environmental problems for some (World Bank, 1995; Sinn, 1997), it has positive effects on growth and prosperity for others (Rao and Vadlamannati, 2011).

Harrison (2006) notes that the poor countries will indeed benefit from globalization when there are complementary policies in place. Researchers have claimed that complementary policies have to be in place for globalization to have more beneficial effect in developing countries (Samimi and Jenatabadi, 2014; Sakyi, 2011). In fact, the impact of globalization depends on the set of complementarities policies of the countries such as human capital and infrastructure development, financial development and democracy.

This paper disentangles the relationship between economic globalization and growth in panel of Central African Economic and Monetary Community (CEMAC) countries over the period 1970–2015. Furthermore, this study examines whether the growth effects of economic globalization in CEMAC depend on the level of financial development and democracy.

This paper is organized as follows. The next section consists of literature review. Afterwards, the model, data and empirical techniques used are presented. Then, the results and their interpretations are presented. The last section concludes the study with important issues on policy implications.

2. Literature Review

Numerous studies have investigated the relationship between globalization and economic growth. The findings are mixed across the globalization dimension, methodologies and sample. Using panel data analysis technique on a sample of 123 countries between 1970 and 2000, Dreher (2006) analyzed the relation between globalization and economic growth. He found that globalization affects the economic growth in a positive way. The robustness of the results of Dreher (2006) is confirmed by Villaverde and Maza (2011) who suggest that globalization measured by the four KOF indices increases economic growth. The dataset includes up to 101 developing and developed countries over the period 1970-2005. Leitão (2012) examined the link between economic growth, globalization and trade in the U.S.A between the years 1995 and 2008. Using panel data techniques, he found that globalization increases the economic growth. This evidence was confirmed by the works of (Shaikh and Shah, 2008; Mutascu and Fleischer, 2011; Ray, 2012) On Pakistan, Romania and India respectively. Recently, Majidi (2017) examined the effects of economic, social and political

globalization on the economic growth in developing countries using panel data for 100 developing countries during the period 1970-2014. The results of the estimates revealed that economic growth in upper middle income countries is negatively and significantly correlated with political globalization while economic and social globalization has not significant effect on economic growth. Furthermore, the impact of overall and political globalization on economic growth in developing countries with lower middle income is positive and significant but economic and social globalization dimensions have insignificant effect. In the following, Ulucak (2018) analyzed the effect of globalization on economic growth for the panel of emerging economies by conducting second generation panel data techniques on annual data spanning from 1970 to 2014. The results show that overall, economic, and social globalizations have positive impact on economic growth while the impact of political dimension on economic growth is negative. Samimi and Jenatabadi (2014) have used the generalized method of moments (GMM) to examine whether economic globalization affect economic growth in Organization of Islamic Cooperation (OIC) countries. The results of estimates show that economic globalization has positively related with economic growth in OIC countries. They also founded that this positive effect is increased in the countries with better-educated workers and well-developed financial.

To examine the relationship between economic, social and political globalization and economic growth, Ying et al. (2014) used Fully Modified Ordinary Least Squares (FMOLS) technique on a sample of ASEAN countries during 1970-2008. They founded that economic globalization has a positive and significant effect on economic growth. However, the results also show that social globalization has a negative effect on economic growth while political globalization has an insignificant effect. Chang and Lee (2010) analyzed the impact of overall globalization index and its components, which are economic, social and political globalization indexes, on the economic growth on a sample of 23 OECD countries over the period 1970-2006. With the help of cointegration analysis, the results show that there is a weak connection between variants and causality in short terms but in long terms there is a one way connection from overall, economic and social globalization to economic growth. Acikgoz and Mert (2011) used the Auto-Regressive Distributes Lag (ARDL), which is defined by Pesaran and al. (2001) to analyze the causality connection between economic, social and political globalization and economic growth in Turkey between the years 1970 and 2008. They revealed the insignificant relationship between the economic globalization and economic growth. But there is a causality connection from social and political globalization to the growth.

In the Africa context, Rao and Vadlamannati (2011) use KOF and test its impact on economic growth of 21 African countries during 1970–2005. The positive effect of globalization on economic growth is also confirmed by the extreme bounds analysis. The result indicated that the positive effect of globalization on growth is larger than the effect of investment on growth. Using GMM system estimators by Arellano and Bover (1995) and Blundell and Bond (1998) on a panel of 41 African countries during the period 1970-2009, Ali and Imai (2013) found that economic globalization is positively correlated with economic growth. Using panel data regression, the results of regression show that economic and political globalization has a positive and significant influence on economic growth. Meanwhile, social globalization related negatively to economic growth. Sakyi (2011) uses data for 31 Sub-Saharan African countries over the period 1980-2005. Cointegration tests show that economic globalization indices and per capita GDP are cointegrated. The results of a group mean FMOLS estimator for cointegrated panels show that economic globalization is positively correlated with GDP per capita. Also, democracy matter for the size of growth effect of economic globalization.

From the empirical works above it can be realized that a growing number of studies have investigated the relationship between globalization and economic growth, but none have been conducted on Central African Economic and Monetary Community. Therefore this study serves to fill this gap.

3. Empirical strategy

3.1 The Model

To investigate the relationship between economic globalization and economic growth in CEMAC countries, we estimate a panel data model using the following empirical model:

$$GDP_{it} = \delta_0 + \delta_1 KOFE_{it} + \delta_2 CV_{it} + \varepsilon_{it} \quad (1)$$

where i is country index, t is time index, δ_0 to δ_2 are the parameters to be estimated, GDP is the logarithm of real *GDP* per capita, $KOFE$ is economic globalization, CV is a vector of other control variables that affect economic growth including government consumption (*GC*), life expectancy at birth (*LEB*), inflation (*INF*), domestic investment (*DI*), liquid liability to capture the financial development (*FD*) and polity2 as index of democracy (*DE*M).

For the second research question that attempts to check whether the complementary policies in the form of level of democracy has any effect on the impact of globalization on

growth in CEMAC countries, an interaction term between *KOFE* and the democracy (*DEM*) variable is included in equation (1) as follows:

$$GDP_{it} = \gamma_0 + \gamma_1 KOFE_{it} + \gamma_2 CV_{it} + \gamma_3(\mathrm{KOF} * \mathrm{DEM_{it}}) + \varepsilon_{it} \quad (2)$$

To determine if there is any relationship between the financial development and the impact of economic globalization on economic growth, an interaction term between KOFE and financial variable (FD) is include in equation (1) as follows:

$$GDP_{it} = \beta_0 + \beta_1 KOFE_{it} + \beta_2 CV_{it} + \beta_3(\mathrm{KOF} * \mathrm{FD_{it}}) + \varepsilon_{it} \quad (3)$$

3.2 Methodology

To examine whether economic globalization affect economic growth in the CEMAC, techniques concerned with the econometrics of panel are used. Our econometric analysis sequentially estimates in two different models: Random Effects (RE) and Fixed Effects (FE) models.

The fixed effect model allows for heterogeneity or individuality among six countries of CEMAC by allowing having its own intercept value. The term fixed effect is due to fact that although the intercept may differ across the six countries, but the intercept does not vary over the time. That is it is time invariant. In the random effect model, six countries have a common mean value for the intercept.

Then, after estimating random effect and fixed model, Hausman Test is applied to check which model (FE or RE) is suitable to accept.

3.3 Data

This study uses secondary data of CEMAC countries, *Cameroon*, *Gabon*, *Chad*, *Equatorial Guinea*, *Congo* and *Central African Republic* from 1970-2015 period.

Our dependent variable is economic growth measured by logarithm of the Real GDP per capita using the purchasing power parity (PPP) exchange rates and is obtained from the Penn World Table (PWT 9.1) of Heston and al. (2018). The economic dimension of KOF index is derived from Dreher et al. (2008). Economic globalization (KOFE) has two sub-dimensions: actual flows of trade and FDI and restrictions on international economic activities.

The group of control variables is comprised of variables frequently used in the growth literature. Government consumption (*GC*) from Heston and al (2018), life expectancy at birth (*LEB*), inflation, GDP deflator (*INF*) and Gross capital formation % GDP as proxy of domestic investment (*DI*) are derived from World Development Indicators (2017). Liquid

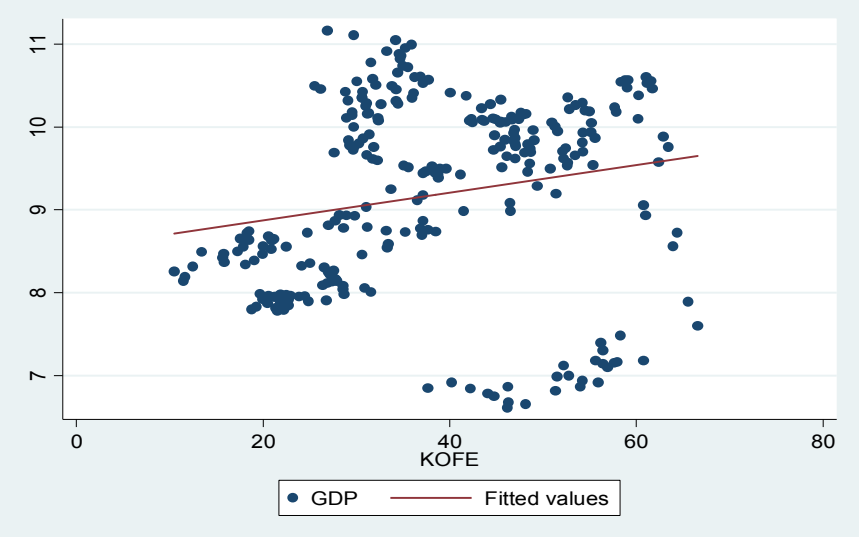
liability to capture the financial development (*FD*) is derived from Global Financial Development Database (2018) and polity2 as index of democracy (*DE*M) derived from the Polity IV index of democracy (Marshall et al., 2011).

Table 1 presents descriptive statistics and data sources for all variables included in the empirical analysis.

Table 1*:* Summary statistics

Variable	Obs	Mean	Std. dev.	Min	Max.	Source
GDP per capita	276	9.173908	1.135441	6.612978	11.16386	Heston et al. (2011)
Economic globalization	276	37.96126	13.28611	10.48802	66.54346	Dreher et al. (2008)
Polity2	276	-4.77173	3.578024	-9	5	Marshall et al. (2017)
Financial Development	261	1321.445	412.155	16.5233	6045.8	Global Financial Development (2018)
Inflation	265	6.768302	13.7388	-31.6	65.4	World Bank (2016)
Life expectancy at birth	276	51.42572	5.745818	39.7	65.7	World Bank (2016)
Government consumption	271	14.55461	30.64615	2.7	84.5	Heston et al. (2011)
Domestic Investment	271	31.12251	30.64615	2.7	219.1	World Bank (2016

Figure 1: Economic growth Vs KOFEG



Source: The author

Figure 1 displays the Real GDP per capita growth (GDP) and economic globalization (KOFEG) for the sampled countries over the entire period (1970–2015). The fitted line shows a fairly strong relationship between Economic globalization and economic growth (R^2= 0.20).

4. **Results**

Tables 2 present baseline estimation results. After doing Hausman test, the result showed that Fixed Effects Model is better than Random Effects Model for the three equations. All estimations apply fixed country specific effects. The first columns shows the results of estimates on the effects of economic globalization on economic growth, the second column presents the results of estimates on the effect of globalization on economic growth which use interaction terms between economic globalization and democracy. The third column shows the results which use second interaction term between economic globalization and financial development. F statistic is statistically significant at far beyond the 1 percent level for all equations, attesting to the overall strength of the model.

Table 2: The Result of Panel Data Processing Approach to Fixed Effect Model (FE)

Dependent variable: Real GPD per capita			
Variables	1	2	3
KOFEG	0.038* (0.005)	0.042* (0.007)	0.033* (0.006)
DEM	-0.003 (0.007)	-0.031 (0.028)	-0.002 (0.007)
FD	0.0001* (0.00003)	0.0001* (0.00003)	0.00001 (0.00009)
KOF ∗ DEM		0.0007 (0.0007)	
KOF ∗ FD			0.00003 (0.00002)
GC	-0.030* (0.007)	-0.033* (0.007)	-0.031* (0.007)
INF	-0.001 (0.001)	-0.002 (0.002)	-0.001 (0.001)
LEB	0.065* (0.011)	0.062* (0.011)	-0.006* (0.001)
DI	-0.007* (0.001)	-0.007* (0.001)	0.063* (0.011)
Cons	4.940* (0.670)	4.963* (0.670)	5.153* (0.687)
R- overall	0.563	0.573	0.543
Prob > F	0.000	0.000	0.000
Hausman Test	0.000	0.000	0.000
Observations	258	258	258

Note: *indicates significance at the 1% level
Standard Errors in parentheses.

The results in the three columns show that economic globalization is positive and statistically significant at the 1 percent level to economic growth of GDP per capita (Tables 2). These results mean that a rise in economic globalization is associated with an increase in Real GDP per capita. The positive impact is in accordance with the bulk of the existing empirical literature that support gainful impact of globalization on economic growth (Samimi and Jenatabadi, 2014; Rao and Vadlamannati, 2011; Ying et al., 2014).

According to the theoretical works, globalization increases economic growth by allocating world resources more efficiently as CEMAC countries that can be specialized in productions with comparative advantages. Through globalization, CEMAC countries have access to larger markets; these countries can gain from economic of scale which leads to a reduction in average production cost. Globalization leads to increased flows of inward investment in CEMAC which provide a higher return to capital. The globalization intensified the productivity and innovation, involved the diffusion of knowledge, practices and new technologies as the main factors in the process of economic growth.

The results in column 1 also reveal that financial development and life expectancy have positive impact on economic growth while government consumption and domestic investment have negative and significant effects on growth.

The results in column 2 and 3 show that coefficients of the interaction between KOFEG, DEM and FD are insignificant. The findings indicate that the effect of economic globalization on economic growth in CEMAC over the period 1970-2015 does not depend on the set of complementary policies.

5. Conclusions

Although global concept is new, interconnectedness between economies is not a new phenomenon and it actually had its origins in the nineteen century. Given the rapid diffusion of progress in technology, communication, factors of production, infrastructure of transportation, globalization process is a key driver of economic growth in developing countries which results in development and welfare. This paper provided empirical evidence on the relationship between globalization and economic growth in CEMAC countries for the period 1970 to 2015. This study also assesses whether the growth effects of globalization depend on the complementary polices of CEMAC countries. To measure the economic globalization we used the KOF economic index of Dreher (2006).

The results support the view that an increase in economic globalization may increase economic growth in the case of CEMAC countries. In addition, the results do not show evidence that growth effect of globalization depend on democracy and financial development. Therefore, government of CEMAC countries should fostered mutual support among member in their reform so that CEMAC is perceived as an effective vehicle for the integration into the world economy. However, the CEMAC countries are likely share in the gain from globalization when there are complementary policies in place. Such complementary policies include programs to promote democratic institutions, human capital and infrastructure development, macroeconomic stability, financial development.

These results merit further research to gain knowledge on the others transmission mechanisms of the effects of economic globalization on economic growth in CEMAC. Social and political dimension of globalization process have to use in the future researchers.

References

Acikgoz, S and M. Mert (2011), "Küresellesme Iktisadi Buyumeyi Etkiliyor Mu? Türkiye Ornegi", 12. *Uluslararasi Ekonometri, Yoneylem Arastırması ve Istatistik Sempozyumu* Pamukkale Üniversitesi Denizli, 2011, pp.701-716.

Ali, A and K. S. Imai (2013), "Crisis, Economic Integration and Growth Collapses in African Countries"*, Discussion Paper Series,* DP2013-07. Kobe: Kobe Research Institute for Economics & Business Administration, Kobe University.

Arellano, M. and O. Bover (1995), "Another Look at the Instrumental Variable Estimation of Error components Models', *Journal of Econometrics*, 68(1), pp. 29- 51. Countries", Discussion Paper Series DP2013-07. Kobe: Kobe Research Institute for Economics & Business Administration, Kobe University.

Chang, C. P and C. C. Lee (2010), "Globalization and Economic Growth: A Political Economy Analysis for OECD Countries", *Global Economic Review*, Vol.39 (2), 2010, pp.151-173.

Dumitrescu, E. I. and C. Hurlin (2012), "Testing for Granger non-causality in heterogeneous panels", *Economic Modelling*, 29(4), 2012, pp.1450-1460.

Dreher, A. (2006), "Does globalization affect growth? Evidence from a new index of globalization", *Applied Economics*, 38(10), pp. 1091–1110.

Dreher, A., N. Gaston and P. Martens (2008), "Measuring globalisation: Gauging its consequences" *Springer* Verlag.

Gygli, S., F Haelg., N Potrafke and J. Sturm, (2019) "The KOF Globlization Index-Revisited", *CESifo* Working Paper No. 7430.

Harrisson, A. (2006) "globalization and Poverty" NBER Books, *National Bureau of Economic Research*, Inc, number harr06-1,6.

Hausman, J., A. (1978), "Specification tests in econometrics", *Econometrica* 46: 1251–1271.

Heston, A. R., Summers and B. Aten (2011), "Penn World Table Version 7.0", *Center for International Comparisons of Production, Income, and Prices at the University of Pennsylvania*, June 2011.

International Monetary Fund. (2001), "*Global trade liberalization and the developing countries*", Available at www.imf.org/external/np/exr/ib/2001/110801.htm.

International Monetary Fund. (2015), "Communauté Économique et Monétaire de l'Afrique Centrale (CEMAC), Questions générales".

Leitão, N. C. (2012), "Economic Growth, Globalization and Trade"*, Management Research and Practice*, Vol.4, Issue 3, 2012, pp.18-24.

Majidi, F. A. (2017), "Globalization and Economic Growth: The Case Study of Developing Countries", *Asian Economic and Financial Rev*iew DOI: 10.18488/journal.aefr.2017.76.589.599 Vol. 7, No. 6, 589-599.

Marshall, M and K. Jaggers (2013), "*Polity IV Project: Political Regimes Characteristics and Transitions, 1800-2012*".

Mutascu, M. and, A.-M. Fleischer "Economic Growth and Globalization in Romania", *World Applied Sciences Journal*, 12 (10), 2011, pp.1691-1697.

Pesaran, M, H., Shin, Y., and J. R. Smith, (2001), "Bounds testing approaches to the analysis of level relationships", *Journal of Applied Econometrics*, 16(3), 289–326. doi:10.1002/(ISSN) 1099-1255.

Rao, B. B and K. C. Vadlamannati (2011), "Globalization and growth in the low income African countries with the extreme bounds analysis", *Economic Modelling,* 28: 795–805.

Ray, S. (2012), "Globalization and Economic Growth in India: A Granger Causality Approach", *Journal of Law*, Policy and Globalization, Vol.2, 2012, pp.18-30.

Sinn, H.-W. (1997), "The Selection Principle and Market Failure in System Competition", *Journal of Public Economics, 66*(2), 247-274.

Shaikh, F. M. and M. A. Shah (2008), "Impact of Globalization on Pakistan's Economy by Using CGE Model", *International Conference on Applied Economics – ICOAE*, 2008, pp.839-845.

Ulucak, R. (2018), "The Effect of Globalization on Economic Growth: Evidence From Emerging Economies", IG Global DO- 10.4018/978-1-5225-5787-6.ch001

World Bank. (1995a), "World Development Report 1995: Workers in an Integration World" New York: Oxford University Press.

Ying, Y. H., K. Chang and C. H. Lee (2014), "The Impact of Globalization on Economic Growth", *Romanian Journal of Economic Forecasting*, 17(2), pp.25-34.

Appendix

Tableau 3: The KOF index of economic globalization

Indices and Variables	Weights
Economic Globalisation	36%
i) *Actual Flows*	50%
Trade (percent of GDP)	21%
Foreign Direct Investment, stocks (percent of GDP)	28%
Portfolio Investment (percent of GDP)	24%
Income Payments to Foreign Nationals (percent of GDP)	27%
ii) *Restrictions*	50%
Hidden Import Barriers	24%
Mean Tariff Rate	27%
Taxes on International Trade (percent of current revenue)	26%
Capital Account Restrictions	23%